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Claims

1.   An arrangement for channel estimation in a wireless
communication system, the arrangement comprising:
         correlation channel estimation means for
      receiving input signals representative of channel
      information and for producing therefrom correlation
      channel estimate signals;
         correlation peak identification means coupled
      to the correlation channel estimation means for
      deriving from the correlation channel estimate
      signals representative of correlation peaks; and
         cross-correlation peak removal means coupled to
      the correlation channel estimation means and to the
      correlation peak identification means for removing
      cross-correlation peaks from the correlation channel
      estimate signals to produce improved channel
      estimate signals.

2.   The arrangement of claim 1 wherein the correlation
peak identification means comprises cross-correlation
peak identification means for identifying a cross-
correlation peak as having a smaller magnitude than a
correlation peak.

3.   The arrangement of claim 1 or 2 wherein the input
signals representative of channel information comprise
signal portions constructed from a single periodic base
code.

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4.   The arrangement of claim 3 wherein the signal
portions comprise midambles.

5.   The arrangement of any preceding claim wherein the
wireless communication system is a UMTS system.

6.   The arrangement of claim 5 wherein the UMTS system
is a UTRA TDD system.

7.   The arrangement of claim 6 wherein the input signals
comprise random access PRACH bursts.

8.   A method for channel estimation in a wireless
communication system, the method comprising:
        providing correlation channel estimation means
receiving input signals representative of channel
information and producing therefrom correlation
channel estimate signals;
        providing correlation peak identification means
coupled to the correlation channel estimation means,
the correlation peak identification means deriving
from the correlation channel estimate signals
representative of correlation peaks; and
        providing cross-correlation peak removal means
coupled to the correlation channel estimation means
and to the correlation peak identification means,
the cross-correlation peak removal means removing
cross-correlation peaks from the correlation channel
estimate signals to produce improved channel
estimate signals.

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9.   The method of claim 8 wherein the correlation peak identification means comprises cross-correlation peak identification means identifying a cross-correlation peak as having a smaller magnitude than a correlation peak.

10.   The method of claim 8 or 9 wherein the input signals representative of channel information comprise signal portions constructed from a single periodic base code.

11.   The method of claim 10 wherein the signal portions comprise midambles.

12.   The method of any one of claims 8-11 wherein the wireless communication system is a UMTS system.

13.   The method of claim 12 wherein the UMTS system is a UTRA TDD system.

14.   The method of claim 13 wherein the input signals comprise random access PRACH bursts.

15.   The method of any one of claims 8-14 wherein the step of providing cross-correlation peak removal means comprises repeatedly cancelling cross-correlation peaks at locations other than that of an identified peak and identifying the next largest magnitude remaining peak.

16.   The method of claim 15 wherein the step of repeatedly cancelling and identifying is performed a predetermined number of times.

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17. The method of claim 15 wherein the step of
repeatedly cancelling and identifying is performed until
an identified peak has a magnitude less than a
5   predetermined value.

18. The method of any one of claims 8-17 further
comprising ensuring that no transmission occurs in a
timeslot immediately following that in which channel
10 estimation is performed.

19. A method for channel estimation in a wireless
communication system, the method comprising:
            providing correlation channel estimation means
15   receiving input signals representative of channel
            information and producing therefrom correlation
            channel estimate signals; and
            ensuring that no transmission occurs in a
            timeslot immediately following that in which channel
20   estimation is performed.

20. A base station for use in a wireless communication
system comprising an arrangement as claimed in any one of
claims 1-7.

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21. An integrated circuit comprising the arrangement of
any one of claims 1-7.

22. A computer program element comprising computer
30 program means for performing the method of any one of
claims 8-19.